UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,754	12/11/2003	Harvey G. Kiel	ROC920030306US1	8410

30206 7590 05/12/2009

IBM CORPORATION
ROCHESTER IP LAW DEPT. 917
3605 HIGHWAY 52 NORTH
ROCHESTER, MN 55901-7829

EXAMINER
THOMPSON, JR, OTIS L

ART UNIT	PAPER NUMBER
2419	

MAIL DATE	DELIVERY MODE
05/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,754	KIEL ET AL.	
	Examiner	Art Unit	
	OTIS L. THOMPSON, JR	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,35-37 and 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10,12,35-37 and 41* is/are rejected.

7)☒ Claim(s) *5,11 and 13-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments with respect to claims 1-16, 35-37, and 41 have been considered but are moot in view of the new ground(s) of rejection. The new grounds of rejection that are relied upon are found in Applicant's Admitted Prior Art in the BACKGROUND section of Applicant's specification and in Moriki et al. (US 2004/0153853 A1).

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gioquindo et al. (US 2002/0029286 A1) in view of Applicant's Admitted Prior Art, hereinafter referred to as AAPA, in view of Schmidt (US 2003/0079067).

4. **Regarding claim 1,** Gioquindo et al. discloses a method for sharing a multiple queue Ethernet adapter comprising:

a. *Receiving a frame or packet in the adapter* (Paragraph 0052, see "...packet is received from the Host, the destination IP address is "looked up" in the ARP tables...", i.e. the packet is received at the OSA adapter in figure 3 label 120);

b. *Determining whether the frame or packet is for one or more of a plurality of partitions that share the adapter* (Paragraph 0052, see "…destination IP address is

"looked up" in the ARP tables…If an entry is found and is marked as a HOME entry…"; Paragraph 0049, see "…saving "HOME" IP addresses within the communications adapter…"; Paragraph 0050, "…"HOME" address are those which are recognized as local IP addresses…", i.e. IP address of a packet is looked up to see if the destination indicates a partition that shares the adapter);

c. *If the frame or packet is for one or more of the plurality of partitions that share the adapter:*

i. *Determining one or more of the plurality of partitions to which the frame is to be sent* (Paragraph 0052, see "…destination IP address is "looked up" in the ARP tables…If an entry is found and is marked as a HOME entry…");

ii. *Transferring the frame or packet directly to each of the one or more partitions to which the frame or packet is to be sent* (Paragraph 0052, see "...then the IP packet is routed directly to the LPAR owning that address...").

Gioquindo et al. does not specifically disclose *storing the frame or packet in an adapter cache memory and transferring the frame or packet from the adapter cache memory directly to the partition memory.* However AAPA discloses a logically partitioned server (Page 2 lines 9-11) similar to the host system 111 of Gioquindo et al. in figure 3. In this logically partitioned server, an adapter is used to transfer data to and from the partitions. The adapter may transfer data to or from adapter memory (e.g., an adapter cache memory) [i.e. *storing the frame or packet in adapter cache memory*] from or into main memory (e.g., a portion of main memory allocated to server as partition memory) [i.e. *transferring the frame or packet from the adapter cache memory directly to the partition memory*], respectively, using a functionality called direct

memory access (Page 2 lines 20-30). The direct transfer provides the advantage because the word 'direct' implies that there is a reduction in latency or a reduction in delay in the transfer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of AAPA into Gioquindo et al. in order perform a fast transfer of a data packet from an adapter to a partition.

Gioquindo et al. in view of AAPA does not specifically disclose that a packet is transferred from adapter cache memory directly to *a receive queue of each of the one or more partitions to which the frame or packet is to be sent.* However, Schmidt discloses a partitioned computer system in which device drivers are used to drive data exchanges between partitions. Schmidt further discloses that a device driver that is employed by a partition has a send queue and a receive or target queue (Figure 2 Send Queue 222 and Receive Queue 220), wherein the receive queue is used for receiving data which is addressed thereto (Paragraph 0044, see all). In figure 2, a logical partition is represented by Discrete Servers 1 to n (212a to 212n). Hence, each logical partition has it own transmit queue and its own receive queue (Rx, 220; Tx, 222). Schmidt further discloses in paragraph 0043, that a figure 2 is a single computer with shared physical memory 210 on which these partitions, device drivers, and queues exist. AAPA discloses this same type of shared memory as being partitioned and a portion of main memory being allocated to serve as partition memory (AAPA, Page 2 lines 20-27). Since the receive queue of a partition in Schmidt is used for receiving data which is addressed to the associated partition, when combined with AAPA, *the direct transfer from cache memory to the receive queue of the partition* is performed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Schmidt into Gioquindo et al. in view of AAPA in order to allow a partition to receive data through its respective receive queue.

2. **Regarding claim 3,** Gioquindo et al. in view of AAPA in view of Schmidt discloses *accessing a table stored in the adapter and determining one or more of the plurality of partitions to which the frame or packet is to be sent based on data stored in the table* (Gioquindo et al., Paragraph 0052, see "…destination IP address is "looked up" in the ARP tables…If an entry is found and is marked as a HOME entry…").

3. **Regarding claim 4,** Gioquindo et al. in view of AAPA in view of Schmidt discloses *determining one or more of the plurality of partitions to which the frame or packet is to be sent based on at least one of a MAC address, VLAN ID/MAC address pair, and an IP address stored in the table* (Gioquindo et al., Paragraph 0052, see "…destination IP address is "looked up" in the ARP tables…If an entry is found and is marked as a HOME entry…").

4. **Regarding claim 10,** Gioquindo et al. discloses *a method of sharing a multiple queue Ethernet adapter comprising:*

d. *Transferring a frame or packet from a sending partition to the adapter* (Paragraph 0052 "...packet is received from the Host, the destination IP address is "looked up" in the ARP tables...", i.e. the packet is received at the OSA adapter in figure 3 label 120) *and transferring a frame or packet from the adapter directly to the receiving partition* (Paragraph 0052, see "…destination IP address is "looked up" in the ARP tables…If an entry is found and is marked as a HOME entry then the IP packet is routed directly to the LPAR owning that address...").

Gioquindo et al. does not specifically disclose *transferring the frame or packet from the adapter cache memory directly to the partition or from the partition directly to the adapter cache memory.* However AAPA discloses a logically partitioned server (Page 2 lines 9-11) similar to the host system 111 of Gioquindo et al. in figure 3. In this logically partitioned server, an adapter is used to transfer data to and from the partitions. The adapter may transfer data to or from adapter memory (e.g., an adapter cache memory) from or into main memory (e.g., a portion of main memory allocated to server as partition memory) [i.e. *transferring the frame or packet from the adapter cache memory directly to the partition memory or from the partition directly to the adapter cache memory*], respectively, using a functionality called direct memory access (Page 2 lines 20-30). The direct transfer provides the advantage because the word 'direct' implies that there is a reduction in latency or a reduction in delay in the transfer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of AAPA into Gioquindo et al. in order perform a fast transfer of a data packet from an adapter to a partition.

Gioquindo et al. in view of AAPA does not specifically disclose that a packet is transferred from *the transmit queue of one or the plurality of partitions* directly to the adapter cache memory, or that a packet is transferred from adapter cache memory directly to *a receive queue of one or more of the plurality of partitions.* However, Schmidt discloses a partitioned computer system in which device drivers are used to drive data exchanges between partitions. Schmidt further discloses that a device driver that is employed by a partition has a send queue [i.e. *transmit queue*], the send queue being used for sending data from the respective discrete server, and a receive or target queue (Figure 2 Send Queue 222 and Receive Queue 220),

wherein the receive queue is used for receiving data which is addressed thereto (Paragraph 0044, see all). In figure 2, a logical partition is represented by Discrete Servers 1 to n (212a to 212n). Hence, each logical partition has it own transmit queue and its own receive queue (Rx, 220; Tx, 222). Schmidt further discloses in paragraph 0043, that a figure 2 is a single computer with shared physical memory 210 on which these partitions, device drivers, and queues exist. AAPA discloses this same type of shared memory as being partitioned and a portion of main memory being allocated to serve as partition memory (AAPA, Page 2 lines 20-27). Since the receive queue and transmit queue of a partition in Schmidt are used for receiving and transmitting data respectively, when combined with AAPA, *the direct transfer to and from cache memory to the from and to the transmit queue and receive queue of the partition* is performed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Schmidt into Gioquindo et al. in view of AAPA in order to allow a partition to receive data through its respective receive queue.

5. Claims 2, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gioquindo et al. in view of AAPA in view of Schmidt as applied to claim 1 above, and further in view of Gulick et al. (US 6,314,501 B1).

6. **Regarding claim 2 and 36,** Gioquindo et al. in view of AAPA in view of Schmidt discloses the claimed invention above but fails to specifically disclose *generating an interrupt (Message Signaling Interrupt, MSI) to notify each of the one or more partitions to which the frame or packet is transferred of the frame or packet.*

However, Gulick et al. discloses a partitioned computer system allowing partitions to communicate with each other using a shared memory, in which an interrupt is generated to a receiving partition in order to signal the partition that information is being transferred to it (Column 3 lines 5-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Gulick et al. into the system of Gioquindo et al. in view of AAPA in view of Schmidt in order to notify a receiving partition that data is being transferred to it.

7. **Regarding claim 35,** Gioquindo et al. in view of AAPA in view of Schmidt discloses the claimed invention above but fails to specifically disclose *determining whether the frame or packet is a broadcast frame or packet and transferring the broadcast frame or packet to a receive queue of all of the plurality of partitions.*

However Gulick et al. discloses *determining whether the frame or packet is a broadcast frame or packet and transferring the broadcast frame or packet to a receive queue of all of the plurality of partitions* (Gulick et al., Column 53 lines 40-50, see "...packets with broadcast or multicast MAC address are copied into as many shared memory buffers as necessary to send directly to each partition…"; Column 4 lines 43-61, see "...output queue for a given partition indicates whether that partition has placed in the shared memory window any communications intended for any of the other partitions..."). Gulick et al. is advantageous in that it allows multiple partitions to share memory (See Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Gulick et al. into the system of

Gioquindo et al. in view of AAPA in view of Schmidt in order to allow multiple partitions in a partitioned computer system to share memory.

8. Claims 6, 7, 37, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Schmidt in view of Gulick et al.

9. **Regarding claim 6,** AAPA discloses *a method for sharing a multiple queue Ethernet adapter comprising:*

e. *Transferring a frame or packet corresponding to a selected partition from the selected partition directly to the adapter the cache memory* (Page 2 lines 20-31, see "…adapter may transfer data to...adapter memory (e.g., an adapter cache memory) from ...main memory (e.g., a portion of main memory allocated to server as a partition memory)...a direct memory access (DMA) may be performed by the adapter to copy data to adapter memory…from…main memory…"; i.e. The selected partition is the partition that is currently transferring data from its partition memory to the adapter cache memory); *and*

f. *Transmitting the frame or packet from the adapter* (Page 2 lines 15-20, see "…multiple partitions to communicate…", i.e. Partition communication implies that a frame or packet will obviously be transmitted from the adapter to the final destination of the frame or packet, whether the destination is another partition or not).

AAPA does not specifically disclose transferring the frame or packet *from a transmit queue of the selected partition.* However, Schmidt discloses a method in which a transmit queue of a logical partition (Figure 2 label 222 for each discrete server) which is used for sending data

from the respective discrete server when that discrete server is the sending server (Paragraph 0044 where the send queue is the transmit queue). Each partition consumes a portion of shared physical memory 210 in figure 2 (also see Paragraph 0043), just as the logical partitions taught by AAPA above. Hence, in combination with AAPA, a partition in Schmidt would transmit a frame or packet via its respective transmit queue directly to the adapter cache memory as disclosed in AAPA when the partition has a packet or frame to transmit. Schmidt discloses that the configuration of the system in figure 2 (described in Paragraphs 0043-0044) is one that is secure because the partitions (i.e. discrete servers) cannot retrieve information from a common lookup table (Paragraph 0044).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Schmidt into AAPA in order to provide secure partition-to-partition communication.

AAPA in view of Schmidt does not specifically disclose *determining whether one or more of a plurality of partitions have a frame or packet to transmit, and if one or more of the plurality of partitions have a frame or packet to transmit: selecting a partition from the plurality of partitions that have a frame or packet to transmit.*

However, Gulick et al. discloses a partitioned computer system allowing partitions to communicate with each other using a shared memory in which output queues, contained in shared memory, for each partition are polled to determine whether a partition's output queue has data that is intended for another partition in the system (i.e. *determining whether one or more of a plurality of partitions have a frame or packet to transmit*) (Column 4 lines 43-61). The *selection of a partition from the plurality of partitions that have a frame or packet to transmit if*

one or more of the plurality of partitions have a frame or packet to transmit is obvious because only one output queue at a time, of the plurality of output queues being polled corresponding to the plurality of partitions, can be allowed to transmit to the receiving queue of a receiving partition. Gulick et al. is advantageous in that it allows multiple partitions to share memory (See Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Gulick et al. into the system of AAPA in view of Schmidt in order to allow multiple partitions in a partitioned computer system to share memory.

10. **Regarding claim 7,** AAPA in view of Schmidt in view of Gulick et al. discloses *polling a transmit queue corresponding to each of the plurality of partitions* (Gulick et al., Column 4 lines 43-61, see "...area that is polled...comprises a plurality of output queues, one for each partition...") *and determining whether one or more of the plurality of partitions have a frame or packet to transmit based on polling results from one or more of the plurality of partitions* (Gulick et al., Column 4 lines 43-61, see "...output queue for a given partition indicates whether that partition has placed in the shared memory window any communications intended for any of the other partitions...").

11. **Regarding claim 37,** AAPA in view of Schmidt in view of Gulick et al. discloses *determining if the frame or packet is a broadcast frame or packet and transferring the broadcast frame or packet to the receive queue of all partitions except for the selected partition* (Gulick et al., Column 53 lines 40-50, see "...packets with broadcast or multicast MAC address are copied into as many shared memory buffers as necessary to send directly to each partition…"; Column 4

lines 43-61, see "...output queue for a given partition indicates whether that partition has placed in the shared memory window any communications intended for any of the other partitions...").

12. **Regarding claim 41,** AAPA in view of Schmidt in view of Gulick et al. discloses that *transmitting the frame or packet from the adapter includes transmitting the frame or packet using a network connection* (Schmidt, Paragraph 0043, see "…Each discrete server has a TCP/IP layer 216a-216n…for handling the transmission protocols for transmitting data…for networks [i.e. requires network connection]…") *or transmitting the frame or packet to one or more of the plurality of partitions* (Schmidt, Paragraph 0051, see "…transferring data from one LPAR partition to another…").

13. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Schmidt in view of Gulick et al. as applied to claim 6 above, and further in view of Condon (US 5,956,714).

14. **Regarding claims 8 and 9,** AAPA in view of Schmidt in view of Gulick et al. discloses the claimed invention above but fails to specifically disclose *accessing a table stored in the adapter and selecting a partition from the plurality of partitions that have a frame or packet to transmit based on data stored in the table and based on a priority value stored in the table.*

However, Condon discloses various types of queues that may be implemented in a logically partitioned computer system, for example time based, priority based, and FIFO based queues. Priority based queues give certain items a higher priority with respect to other items on the queue. Items having a high priority are dequeued before items at the front of the queue (i.e. *selecting based on a priority value*) (Column 4, lines 40-42 and 50-53). Condon also discloses

selecting a logical partition number associated with a plurality of rows in a table representing a queue (i.e. *accessing a table and selecting a partition from the plurality of partitions that have a frame or packet to transmit based on data stored in the table)* (Column 3 lines 9-13). The system of Condon is advantageous in that it is capable of handling items sent between a plurality of applications (Column 2 lines 30-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the teachings of Condon into the system of AAPA in view of Schmidt in view of Gulick et al. in order to make the system capable of handling items sent between a plurality of applications in different partitions.

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Moriki et al. (US 2004/0153853 A1).

16. **Regarding claim 12,** AAPA discloses *a method of configuring a plurality of partitions of a computer system to share a multiple queue Ethernet adapter comprising:*

g. *Allowing a partition to directly share the adapter with one or more other partitions of the computer system* (Page 2 lines 20-31, see "...adapter may transfer data to or from adapter memory (e.g., an adapter cache memory from or into main memory (e.g., a portion of main memory allocated to server as a partition memory), respectively...a direct memory access (DMA) may be performed by the adapter to copy data to or from adapter memory...from or into main memory..."; i.e. DMA allows a partition to directly share the adapter with one or more other partitions).

AAPA further discloses a Hypervisor which is a firmware layer that divides up processor and main memory among multiple logical partitions. The Hypervisor has the capability of allowing multiple partitions to communicate as well as the capability of supporting data copies between partition memory (Page 2 lines 15-19). Essentially, the Hypervisor allows the sharing of the computing system components across multiple logical partitions. AAPA does not specifically disclose *creating a new partition in the computer system and allowing the new partition to directly share the adapter.*

However, Moriki et al. discloses a system which shows that the Hypervisor is further capable *creating a new partition in a computer system* (See Paragraphs 0053-0054 and Figure 11). Using the Hypervisor, the server administrator specifies a memory address range allocated to a logical partition to be set up newly, the IO device (or slot) numbers allocated thereto, and the boot device of an OS operating therein (Paragraph 0053). As shown above, the Hypervisor allows the sharing of the computing system components across multiple logical partitions. Moriki et al. also teaches this same functionality for the Hypervisor stating that it allocates computer resources (including memory areas, IO devices, etc.) of a server to a plurality of logical partitions (Paragraph 0004). This sharing obviously includes the sharing of the adapter among the multiple partitions. When combined into AAPA, the Hypervisor of Moriki et al. would create a new partition in the computing system of AAPA, and would then allow the new partition to *directly share* the adapter with other partitions in AAPA. The direct sharing for the new partition is obvious because direct sharing via DMA is already being performed for the existing partitions in AAPA.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the new partition creation function of the Hypervisor in Moriki et al. into AAPA in order to allow the sharing of computer resources to extend to newly created partitions.

Allowable Subject Matter

17. Claims 5, 11, and 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OTIS L. THOMPSON, JR whose telephone number is (571)270-1953. The examiner can normally be reached on Monday to Thursday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag Shah can be reached on (571)272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Otis L Thompson, Jr./
Examiner, Art Unit 2419

May 7, 2009

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2419